

CLAIMS

1. Geometric-waveform oscillator for processing light, the geometric-waveform oscillator comprising:

a plurality of masses, at least one of said masses comprising a light processing module;

at least one force producing element coupled with at least one of said masses, said at least one force producing element applying at least one force to said at least one masses; and

a plurality of elastic elements, said elastic elements coupling said masses together, said elastic elements coupling said at least one masses with a respective at least one support,

wherein the mass values of said masses, the force value of said at least one force, and the stiffness coefficients of said elastic elements, are selected such that said light processing module oscillates according to said geometric-waveform.

2. The geometric-waveform oscillator according to claim 1, wherein said geometric waveform is selected from the list consisting of:

triangular;

non-sinusoidal; and

square.

3. The geometric-waveform oscillator according to claim 1, wherein said triangular waveform is symmetric.

4. The geometric-waveform oscillator according to claim 1, wherein said
5 triangular waveform is asymmetric.

5. The geometric-waveform oscillator according to claim 1, wherein said light processing module reflects light.

10 6. The geometric-waveform oscillator according to claim 1, wherein said light processing module oscillates in an oscillatory motion selected from the list consisting of:

linear;

planar;

15 spatial; and

angular.

7. The geometric-waveform oscillator according to claim 1, wherein said at least one force producing element is selected from the list
20 consisting of:

mechanical;

electronic;

electromechanical;

electrostatic;
biomechanical;
thermodynamic; and
fluidic element.

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8. The geometric-waveform oscillator according to claim 1, wherein said at least one force producing element is located at said at least one support.

10 9. The geometric-waveform oscillator according to claim 1, wherein each of said masses, said at least one force producing element, and said elastic elements are incorporated with a microelectromechanical system.

15 10. The geometric-waveform oscillator according to claim 1, wherein said light processing module is located between respective two of said masses.

20 11. The geometric-waveform oscillator according to claim 1, wherein a first group of at least one of said masses and a second group of said at least one masses are symmetrically located at two sides of said light processing module.

12. The geometric-waveform oscillator according to claim 11, wherein a selected mass of said first group and a respective mass of said second group, are located at opposite sides of said light processing module, said selected mass and respective mass having substantially the same geometric and physical characteristics.

13. The geometric-waveform oscillator according to claim 1, wherein said masses and said elastic elements are located between two of said respective at least one support.

14. The geometric-waveform oscillator according to claim 1, wherein the densities of said masses and said elastic elements are substantially the same.

15. The geometric-waveform oscillator according to claim 1, further comprising at least one damping element coupled with two anchoring points.

16. The geometric-waveform oscillator according to claim 15, wherein one of said two anchoring points is located on one selected from the list consisting of:

said at least one masses;

said at least one force producing element; and

at least one of said elastic elements, and
wherein another one of said two anchoring points is located on
one selected from the list consisting of:

said at least one masses;

5 said at least one elastic elements; and

said respective at least one support.

17. Geometric-waveform oscillator, according to any of claims 1-16
substantially as described hereinabove.

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18. Geometric-waveform oscillator, according to any of claims 1-16
substantially as illustrated in any of the drawings.